SOME BEHAVIORAL CONCOMMITANTS OF TIME ORIENTATION

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ABSTRACT

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by George McPherson Gentry

Problem: The purpose of the research was to investigate possible relationships between time orientation and behavior in adolescents. It was predicted that several apparently disparate behaviors are related to one's perception of and orientation to time, and that different constellations of behavior could be predicted for subject groups according to the extensiveness of their time orientation. A new instrument for measuring time orientation was also developed and its efficacy compared with Thematic Apperception Test pictures used for measuring time orientation.

Hypotheses: In order to test the foregoing, the following hypotheses were advanced:

1.1 More subjects with restricted time orientation will be referred to school authorities for disciplinary infractions than those with extended time orientation.

1.2 Subjects with restricted time orientation will obtain lower scores on a standardized achievement test, ability being held constant, than those with extended time orientation.

1.3 Fewer subjects with restricted time orientation will have attained leadership positions in peer organizations than those with extended time orientation.

1.4 More subjects with restricted time orientation will indicate expected vocational goals of an unskilled and semi-skilled nature, which require less foreplanning and training than those with extended time orientation.

2. Subject responses to Thematic Apperception Test pictures will not provide as effective a basis for prediction of the behaviors covered in hypotheses 1.1, 1.2, 1.3, and 1.4 as will responses to the instrument designed for this investigation, the "Terry" test.

Procedure: One hundred sixty-three ninth grade pupils in a public school completed a group of tests and questionnaires. The Reading Comprehension section of the Cooperative English Test was used to rank subjects' achievement. Ability was measured by the Verbal Reasoning section of the Differential Aptitude Test. On the basis of performance on the "Terry" test for time orientation, two subject groups were formed; a Restricted time orientation group (tending to be "present oriented" in their test responses), and an Extended group (tending to project into the future in their responses). These groups were compared according to the behaviors dealt with in the hypotheses.

To test Hypothesis 2, Restricted (TAT) and Extended (TAT) groups were formed from the total subject pool according to performance on the TAT, and the experiment was replicated with these two groups.

Findings: For the "Terry" test groups, all hypotheses were accepted. Subjects with Restricted time orientation were found to have more disciplinary infractions, achieve more poorly, occupy fewer leader-

ship positions, and anticipate more low status occupations as adults than those with Extended time orientation.

For the TAT-based groups, the hypotheses were not accepted. It was concluded that the "Terry" test is a more effective measure of time orientation than the TAT.

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TABLE OF CONTENTS

LIST OF TABLES

Chapter I

Introduction

Nature of the Problem:

Evidence from several investigations (3,5,12,18,24) suggests that some individuals are predisposed to "live in the present", and to have either little appreciation for, or awareness of, the future. Such people may have a proclivity to act with little apparent regard for the consequences of their behavior. Others seem to be able to think ahead before acting, and to modify their behavior in terms of its possible consequences. People in the first group could be said to have a restricted time orientation, and those in the second to have a more extended time orientation.

Until recent years, little attention has been paid by psychologists in the form of either speculation or research to the manner in which people perceive and orient themselves to time. Within the past few years there has been a marked acceleration in attempts to study this factor in human life. Investigators have sought to measure time orientation, and to relate it to behavior. Certain trends, which will be reviewed later, appear to have been discerned.

In this dissertation, an attempt is made to predict patterns of behavior in junior high school pupils from knowledge of the extensiveness of their time orientation, and to demonstrate that pupils with restricted time orientation exhibit general behavior patterns in the school setting substantially different from those of their classmates with extended time orientation.

An instrument for measuring extensiveness of time orientation is also presented, and this investigation may be considered tantamount to a validation study of the instrument as well as of the concept that

certain behavior patterns are associated with extensiveness of time orientation.

Statement of Problem and Hypotheses:

The general purpose of this investigation is to determine whether different behavioral patterns may be predicted for people according to the extensiveness of their time orientation. Specifically, it is averred that junior high school subjects who respond in a temporally restricted manner to the instrument used in this study will also be found to respond to other aspects of the environment in a similarly restricted manner. Their behavior will suggest that they persistently operate in terms of relatively immediate gratification of their needs and impulses, regardless of the consequences of their behavior. Such behavior patterning is less likely to be found in subjects who respond to the instrument in a temporally extended manner.

There are many environmental pressures and expectations with which junior high school pupils have to cope, and behavior relating to all of them could not be studied in one investigation. Because all pupils are confronted with school rules and regulations, the curriculum, and peers, and because they respond to these with varying degrees of effectiveness, it was decided to study behavior samples relating to these three phases of the pupil environment. The ninth grade pupil is also expected to begin working toward some vocational goals, for curricular choices based on such decisions are required in high school. It was, therefore, decided to include data relating to vocational expectations of subjects in this investigation.

Hypotheses:

1. To test the general hypothesis that systematic relationships between time orientation and behavior do exist, the following four

sub-hypotheses are offered:

(1.1) More subjects with restricted time orientation will be referred to school authorities for disciplinary infractions than those with extended time orientation.

(1.2) Subjects with restricted time orientation will obtain lower scores on a standardized achievement test, ability being held constant, than those with extended time orientation.

(1.3) Fewer subjects with restricted time orientation will have attained leadership positions in peer organizations than those with extended time orientation.

(1.4) More subjects with restricted time orientation will indicate expected vocational goals of an unskilled and semi-skilled nature, which require less foreplanning and training than those with extended time orientation.

A second hypothesis, not directly related to the foregoing hypotheses, is offered as follows:

2. Subject responses to Thematic Apperception Test pictures will not provide as effective a basis for prediction of the behaviors covered in hypotheses 1.1, 1.2, 1.3, and 1.4 as will responses to the test designed for this investigation, the "Terry" test.

Definition of Terms:

The only term requiring definition to this study is "time orientation", for which a fully satisfactory definition does not exist in the literature. LeShan (19) suggests that time orientation refers to the extensiveness of the time span with which the individual is concerned; the crucial time limit during which he will frustrate himself in order to attain a goal. Lewin (20) contends that an individual's behavior may encompass more than the present situation.

He states that the psychological past and future are a part of the total life space existing at any given moment, and that the individual's views of the past and future constitute his time perspective, or orientation.

This study is concerned with only one aspect of time orientation; extensiveness. The term "time orientation" as used in this investigation will be understood to mean the extensiveness of time with which the subjects are concerned, as indicated by the number of years into the future to which the subjects refer on a projective device.

Limitations of the Study:

This is an investigation conducted on a subject group of ninth grade pupils, in which an attempt is made to relate certain behaviors to the temporal extensiveness of their responses to a projective device. It is assumed that the types of responses they make to the devices used herein involve time orientation, which itself is a theoretical construct. If the predicted behavior patterns are in fact observed, it simply means that the hypotheses, deduced from a theory of how time orientation may influence human behavior, are accepted. It does not "prove" the theory, or even the existence of time orientation. It merely reinforces the usefulness of the construct of time orientation as an aid to the understanding of human behavior.

The temptation often exists to overgeneralize from data obtained on a limited sample at a certain time under certain conditons. Whatever results are obtained in this study may serve as a basis for investigations on samples drawn from populations of differing ages and status, but sweeping generalizations are not warranted. All

possible behaviors were not observed for this study, so generalizations about behaviors beyond those investigated herein are not warranted. It should be noted that the term "time orientation" as used in this investigation is operationally defined, and refers to extensiveness only. This imposes limitations on the sorts of conclusions which may be drawn.

Organization of Study:

In Chapter II, Section A is devoted to a general review of literature related to the concept of time orientation, its genetic development in the individual, social and cultural factors in its development, and to gross predictions of behavior related to time orientation. Section B includes a review of literature specifically related to the questions with which this investigation is concerned.

Chapter III contains a discussion of the subject population, the means whereby the samples used in the study were chosen, and the methods of measuring the behaviors with which the investigation is concerned. The methods whereby the data were obtained and analyzed are also discussed in this chapter.

Chapter IV is devoted to a presentation and discussion of the data. The summary, conclusions, and suggestions for future research will be found in Chapter V.

Chapter II

Theoretical Considerations and Review of Pertinent Literature

A. Theoretical Considerations:

While the manner in which individuals perceive and orient themselves to time may be an important determinant of behavior, it is obvious that behavior is influenced by factors far more complex. It is suggested, however, that this particular factor is a *sine qua non* of what Mowrer (22) calls integrative behavior, i.e., "behavior which is more consistently rewarding than punishing." Mowrer suggests that time is a concept which humans alone have developed with any degree of refinement, and that one of the essential functions of this concept is to "bridge the gap" for an individual between an act and its consequences, some of which may be considerably delayed. Without this ability to bridge the gap between act and temporally delayed consequences, the individual could be expected to behave in ways which would be immediately rewarding, but which might well being about consequences which in the long run were punishing. Being unable to "look ahead", such an individual would be only dimly able to discern the relationship between his acts and their consequences. He would likely tend to associate the delayed rewards and punishments with the persons who administered them rather than with his own acts which brought them to pass. His behavior might be what Mowrer terms non-integrative, i.e., "behavior which is more consistently punishing than rewarding."

The psychoanalyst might describe such a person as id-dominated. Others would possibly describe him as impulsive. Such a person could be said to live in the present; to be "stimulus bound", and in a real sense a victim of every internal and of every external stimulus.

Other writers appear to have reached conclusions similar to those of Mowrer. Frank (13), for example, states that the individual who is present oriented will, "exhibit consummatory behavior and act naively, and ignore consequences." Dewey (8) writes that, "The person who does not realistically consider consequences, hence, does not plan his behavior will either be 1) capricious or 2) routinized in the conduct of his daily affairs."

Development of Time Orientation in the Individual: It is suggested in the literature that the infant is not born with a sense of time; that he is as innocent of knowledge about this aspect of human existence as he is of any other man made concept. Time orientation is acquired gradually as a product of the interaction of biological maturation and of the socialization process.

Piaget (24) concluded from his developmental studies of children that the infant begins to develop a sense of time arising out of the fact that there are intervals and waiting periods between feedings and other events in his life. Although he has no way of conceptualizing time, he begins to develop pleasurable anticipations, and the basis for an awareness of time is established.

Psychoanalytic writers who have concerned themselves with time sense agree that it is genetically acquired, although they differ among themselves as to which psychosexual or psychosocial stage is primary in its etiology. Yates (32) for example, relates its beginning to the pleasurable anticipations of feeding in the oral stage, while Fenichel (11) emphasizes the importance of the anal phase and the temporal regularity forced on the infant during toilet training.

With the onset of language the infant continues to develop and utilize a conception of time. Ames (2) found that by approximately

the age of two the child begins to utilize conceptions of the past and future in his verbalizations. She states that by the age of five the child refers to the days of the week appropriately, but not until seven can he properly utilize months. Piaget (24) concludes that it is not until the age of four that the child, with the improvement of its language, cognitive, and memory functions, can begin effectively to utilize and talk about temporal concepts. He states that by the age of seven the child is less egocentric and accordingly more able to appreciate the social relevancy of time, to compare his concepts with those of others, and to make appropriate social accommodations.

Friedman (14), and Harrison (17), who studied the development of the sense of time in elementary school children, both concluded that development of the ability to "break out of" the present by means of a concept of time is closely related to the development of mental maturity. Harrison concluded that, "time is a rather abstract concept and develops as the child's use of language and concepts of numbers develops".

Eson (10) concluded from his investigation of time perspective at five different age levels that by the time a normal child is ten, his ability to deal with time concepts appears to be rather well developed.

Social and Cultural Factors in the development of Time Orientation

At the same time the child is maturing biologically and becoming capable of developing a sense of time, social and cultural forces are being brought to bear on him. There is evidence from the field of anthropology that time is an important part of the culturally determined world of reality, and that perception of and orientation to time differs among different cultural groups.

Margaret Mead (21), for example, points out that Greeks, Spanish-American, Burmese, Tivs, and Anglo-Americans conceptualize and view time in widely different manners. Many facets of their lives differ according to their time orientation. The Anglo-American tends to regulate his life according to an accurate reading of the clock. One eats when it is time to eat, leaves work when it is time to do so, makes future plans for definite times, etc. To not be punctual is to be socially unacceptable. If a Greek is punctual for an appointment, Mead writes, he is laughingly called "an Englishman". The Spanish-Americans, similarly, have a casual attitude toward time, and an appointment is likely to be made for, "two or four o'clock this afternoon." Such a time orientation, says Mead, has little place in it for planning, and much life is spontaneous and present oriented.

Other workers report differences in time orientation according to socio-economic subcultural experiences. Gist and Halbert (15), in Australia, Davis (7), in America, and Spinley (28), who worked in England, agree that lower socio-economic class members tend to be preoccupied with the present and its problems and pay relatively little attention to the future. Experimental evidence of time orientation differences of this sort between social classes was reported by Le Shan (19).

B. Review of Experimental Literature

Time-Orientation and Disciplinary Infractions: One might expect that an individual who ignored or was not functionally aware of the consequences of his actions would have a difficult time accommodating his behavior to the social demands of institutions and other individuals. One should expect a higher than chance concentration of such individuals in a population of social deviates, e.g., criminals or

delinquents, or even disruptive, troublesome school pupils. If this is true, then it could be expected that social deviates would reveal a time orientation more concerned with the present than would non-deviates. If it could be demonstrated as well that individuals with restricted time orientation were more likely to be social deviates than those with extended time orientation, the possibility of a clear relationship between deviant behavior and time orientation would be strengthened.

An investigation by Barndt (3) appears to point to such a relationship. He did not attempt to predict behavior from time orientation, but instead compared extensiveness of time orientation of two groups of 16 year old boys; one of institutionalized delinquents and one of public school pupils. He measured time orientation by having the subjects complete a story, and then tell him how long a time had elapsed from beginning to end of the story. The results were placed into categories ranging from "under 1 hour" to "3 months or more". He found that the delinquent boys, as a group, had a significantly more restricted time orientation than the non-delinquents.

It should be noted that one of Barndt's groups was institutionalized and one was not. This fact somewhat obscures the significance which may be attached to his results, particularly in light of a study by Fink (12), which suggests that institutionalization affects time orientation. Fink concluded that the dreary and monotonous routine of an institution removes from the individual much of his control over the future. In such a setting, life has a day to day similarity and the individual has little expectancy for change. He thus tends to lose hope and his future time orientation becomes more restricted.

Barndt's investigation fails to answer the question of whether relationship between time orientation and deviant behavior would be found among individuals in the same setting. The first hypothesis of the present study is specifically addressed to this question.

Time Orientation and Academic Achievement: If individuals with restricted time orientation are prone to behave in a consummatory manner, it might be expected that they would have a difficult time accommodating their behavior to the limitations and expectations encountered in the classroom learning situation. This lack of academic effectiveness might be expected to reveal itself in the results of standardized achievement tests.

Pearson (23) asserts that the child who is a school failure is very often one who is unable to postpone gratification of his needs. He is, in Pearson's words, "Id dominated". When placed in a school setting, where self control is needed for concentration and study, he is unable to function adequately, for his energies are, Pearson says, "in the service of the pleasure principle and he has none left over to devote to the business at hand in school."

In an unpublished paper, Drews and Teahan (9) compared extensiveness of time orientation of high and low achieving intellectually gifted junior high school pupils. They found that high achievers assigned greater ages to characters in fictitious autobiographies they had written than did low achievers. From this, they inferred that the high achievers may have more extensive time orientation of the two groups.

Teahan (29) studied the time orientation of 60 seventh and eighth grade parochial school boys, 30 of whom were high achievers and 30 were low achievers. His results substantiated his main

hypothesis that high achievers would have a more extensive future time orientation than low achievers. Hypothesis number two is concerned with relationship between time orientation and achievement in this subject

Time Orientation and Vocational Expectation: One hypothesis Teahan tested and accepted was that low achievers would be found to reveal a more pessemistic tone in their TAT stories than the high achievers. He also found that subjects with extended time orientation were the more optimistic of the two groups. He also found that subjects with extended time orientation were the more optimistic of the two groups. He felt that these results bore out Lewin's (20) contention that, "...hope, an ingredient in morale, implies a psychological future. Good morale implies the choosing of goals neither too immediate nor too distant, and being convinced that one's action leads in the desired direction." Teahan speculates that the pupil with restricted time orientation will tend to be pessemistic and to have little confidence in his ability to change his present situation or to make a better future for himself. He states, of the individual with restricted time orientation, "His aspiration level would.....be low, and he would perceive the future as one in which only marginal success....could be expected." Although Teahan here is speaking of success in an academic setting, it is suggested that this might be extended to include expected vocational success. One might expect that the subjects with restricted time orientation would choose vocations for themselves which would require less in the way of formal preparation. The occupations would be of a lower status and socioeconomic level than those chosen by subjects with extended time orientation. The third hypothesis of this study was formulated to shed light on this question.

Time Orientation and Leadership: There are no studies known to the writer which specifically deal with possible relationships between time orientation and leadership. Drews and Teahan (9) found that high achieving gifted pupils had attained more leadership positions and belonged to more clubs and organizations than did the low achieving gifted pupils. They also found, as referred to above, that the high achieving pupils had a more extended time orientation than the low achievers. But they did not relate time orientation to leadership.

If it is true that the present oriented individual is unable to postpone the immediate gratification of his needs, it would seem to follow that he would have a relatively more difficult time subordinating the gratification of his needs and impulses to any set of externally imposed rules, expectations, and demands. This should be true no matter what the source of the limitations on behavior. By the same token that individuals with restricted time orientation might be expected to contribute more than their proportionate share to the total of impulsive, disruptive behavior in a public school, such individuals might also be expected to behave similarly in formal clubs and organizations. Because of compulsory school attendance laws, children of junior high school age must attend school, and the schools must somehow cope with the impulsive, disruptive pupil as well as the child who can accommodate his behavior to the limitations set up by the school. Membership in clubs and organizations of peers, however, is voluntary. According to Sherif and Cantril (26), the individual whose behavior deviates too widely from the group norms set up by any club or organization first has pressure to conform to the norms brought to bear on him by the other group

members. If such pressure does not bring the individual's behavior into conformity with the norms, he will tend to be relegated by his peers to the status of a marginal member at best, and possibly be rejected completely by the group and cease to become a member. Sherif points out that the very impulsive child who is unable or unwilling to adopt the group's standards and controls as his own is most often a "lone wolf".

The leaders, even of anti-social street corner gangs, according to Sherif (27), are those who are most adequately socialized, and who are sensitive to the needs and motivations of the other group members. They are able to check their own impulses and needs, and bring the expression of these needs into line with the norms of the group. Such people should be more capable of waiting, biding their time, seeing the picture from a longer range point of view than their followers. If for some reason, they do not behave thusly, they cease to be recognized as leaders by their peers.

If the individual with restricted time orientation is in fact found to exhibit the consummatory behavior of which Frank speaks, it should be expected that he will be less likely to belong to formal organizations than his peers with more extended time orientation, and even less likely to have ascended to leadership positions in such groups as he may belong to.

It is to test the validity of the above line of thought that the fourth hypothesis is presented.

Chapter III

Methods and Procedures

A. The Sample: The tests and questions utilized in this dissertation were given to the entire ninth grade in one of the three junior high schools in Jackson, Michigan. Of the 203 pupils in the class, complete standardized test data were available on 163. The 40 pupils for whom there were incomplete data were not included in the base sample from which the groups used in the investigation were drawn.

This sample was composed of pupils from varying ethnic and socio-economic backgrounds, and also included some pupils from non-urban families. The student body of the junior high school from which this sample was picked is felt in the district to represent more segments of the school district population than either of the other two junior high schools in the city. It was for this reason that this school was selected for the investigation. It might be assumed that this sample represents a population of mid-adolescent individuals enrolled in public schools.

Two samples, hereafter designated the "Restricted" and the "Extended" groups, were obtained from the base sample of 163 according to performance on an instrument which served as the measure of time orientation as defined in the investigation. The "restricted" group consisted of the 44 subjects who obtained a time orientation score of 2 years or less. The "Extended" group was made up of the 30 subjects who obtained a time orientation score of 10 years or more.

In the light of LeShan's (19) findings that children from lower class families have a more restricted time orientation than those from upper class families, it was decided to compare the socio-economic status of the two groups in this investigation. This test was also done because socio-economic status was not a dependent variable, and it seemed desirable to rule out the possibility that any obtained differences were due to socio-economic status rather than the dependent variable of time orientation. This was done by rating the occupational status level of the breadwinner of each subject's family, according to the scale developed by Warner, Meeker, and Eells (30). The significance of any obtained frequency differences of subjects in upper and lower status families was determined by Chi Square. The results are found in Table I. Categories 1, 2, and 3 represent higher status occupations; 6 and 7 represent lower status occupations.

Table I

Status of Breadwinner's Occupation

(frequency in each level)

	Levels 1,2,3	Levels 6,7	Total
Extended time or.	7 (4.67)*	7 (9.33)	14
Restricted time or.	6 (8.33)	19 (16.67)	25
Total	13	26	39

$X^2 = 2.720$
df 1
p n.s.

*(expected frequencies in parantheses)

It can be seen that there are no significant concentrations of subjects from either lower or higher status occupational groups.

The possibility of a relationship between ability and extensiveness of time orientation was examined by computing a rank-order correlation between scores on the DAT and the "Terry Test" for the total base sample of 163 subjects. An r of .276 was found to exist between these two variables. With such a correlation, the coefficient of determination is 7.6. In effect, this means that 7.6% of the variation of the "Terry Test" scores in associated with ability as measured by the DAT.

Therefore, although a positive relationship between time orientation availability exists, it is apparent that the influence of ability on time orientation is slight.

B. Instruments and Methods of Obtaining Data: All subjects were tested by their teachers in groups during regular English periods approximately one month before the end of the 1959-'60 school year. They had previously been given the Verbal Reasoning section of the Differential Aptitude Test and Reading Comprehension section of the Cooperative English Test as part of the school system's group testing program.

C. Instruments: The variables with reference to which the subjects were studied are listed below, together with the tests or instruments according to which the subjects were ranked.

1. Scholastic aptitude: The Verbal Reasoning section of the Differential Aptitude Test (4) was employed,
2. Scholastic achievement: The Reading Comprehension section of the Cooperative English Test (1) was used to rank the subjects according to achievement.
3. Socio-economic status of family: This was determined by

rating the occupation of the family breadwinner according to the Warner, Meeker, Eells (30) scale.

4. Disciplinary infractions: Each subject was rated by the school principal, the assistant principal, and a counselor according to the frequency with which he had come to the attention of the raters for disciplinary infractions during the current school year.

5. Socio-economic level of subject's expected adult occupation: Each subject was asked to state what occupation he expected to engage in as an adult. The occupation was rated according to the Warner, Meeker, Eells scale, and the level recorded for each subject.

6. Leadership positions: Each subject was asked to list the offices he presently held in the clubs and organizations of which he was a member. The number of such positions for each subject was recorded.

7. Time orientation: A. This was measured first by a device developed for use in this paper, which will be discussed below. Time orientation is defined in this study in terms of this device.

The subjects were presented with the following task:

"Fourteen year old Terry is nearly finished with junior high school, and is sitting alone one day thinking, 'What are some of the things that might happen to me?"

"Name five things Terry may be thinking about, and Terry's age at the time these things might happen."

What Terry thought about	Terry's age then
1.	1.

The Terry test furnishes the subject with a definite temporal beginning point, which can be adjusted according to the age and status of the subjects. Because Terry is approximately the same age and has the same educational status as the subjects in this study, identification with Terry and interest in the task should be facilitated.

Since the name "Terry" is one which could belong to either a male or a female, there would appear to be little danger that the device would favor either sex. There are no external criteria of right or wrong answers, and no hints as to how far into the future the subjects should project Terry or what sorts of things Terry ought to be thinking about. The responses to this device, therefore, should be considered as projective in nature.

Time orientation, as used in this study, is defined as the score obtained on this device, the "Terry test". Scoring is done as follows: Terry's age of 14 is subtracted from the age the subject gives Terry for each event listed. This yields the number of years of future projection for each event. The arithmetic mean of the total years of future projection for all five events is calculated, and the resulting average number of years which each subject projects Terry into the future is the time orientation score used in this study.

7.B. Time orientation was also inferred from subjects' responses to pictures 1, 13B, and 14 from the Thematic Apperception Test. The subjects were asked to write stories about these pictures. After the stories were completed, they were asked to check on a scale how long each story had taken to occur, as follows:

How long did it take for this story to happen?
It took a matter of:: (check one)

( ) seconds
( ) minutes
( ) hours
( ) days
( ) weeks
( ) months
( ) years

D. Procedures for Analyzing the Data: I In order to test the hypothesis 1.1, the frequency of reported referrals for disciplinary infractions was recorded for each subject. The numbers of subjects in each group who had never been referred for disciplinary infractions and of those who had been so referred to at least one authority were compared, and the significance of differences in frequencies of referral between the groups was tested by means of Chi Square.

Hypothesis 1.2 stated that subjects with restricted time orientation would obtain lower scores on a standardized achievement test, ability being held constant, than those with extended time orientation. This hypothesis was tested by an analysis of covariance. In effect, the DAT scores of both groups were equated, and the Co-op English achievement scores of the two groups were compared, and significant differences noted.

To test hypothesis 1.3, the numbers of subjects in each of the two groups who had attained leadership positions in peer organizations were compared. The significance of differences in numbers of leadership positions between the two groups was tested by means of Chi Square.

Hypothesis 1.4 was concerned with the expected level of adult occupation for the subjects. A comparison was made of the numbers of subjects in each group who expected to engage in high and low

status occupations. The significances of differences between the two groups was tested by Chi Square.

II Hypothesis 2, that subject responses to the TAT pictures will not provide as effective a basis for prediction of the behaviors covered in hypotheses 1.1, 1.2, 1.3, and 1.4, as will responses to the test designed for this investigation, the "Terry test", was tested as follows: Hypotheses 1.1, 1.2, 1.3, and 1.4 were renumbered 2.1, 2.2, 2.3, and 2.4 for the testing of hypothesis 2. Restricted-TAT and Extended-TAT groups were formed according to subject responses to the question of how long the TAT story took to happen. The responses were ranked as follows:

seconds	1
minutes	2
hours	3
days	4
weeks	5
months	6
years	7

The rankings for all three TAT stories were totaled for each subject. Subjects whose rank totals were 10 or less were included in the Restricted-TAT group. Those whose rank totals were 20 or more were included in the Extended-TAT group. There were 35 subjects in the Restricted-TAT group and 31 in the Extended-TAT group. The significance of any obtained differences between the Restricted-TAT and Extended-TAT groups for hypotheses 2.1, 2.2, 2.3, and 2.4 was tested by Chi Square.

Chapter IV

Analysis of the Data

It should be noted at this point that the hypotheses in this study are stated in such a way as to compare a number of behaviors of the subjects as they are associated with subjects' time orientation. This represents a reversal of the method used in the previous studies referred to herein, in which a comparison was made of the differences in time orientation of subjects picked according to some behavior criterion. An effort is made here to predict behavior from knowledge of the variable of time orientation, not to predict time orientation from knowledge of some given behavior variable.

This procedure appears to be tantamount to a validation of both the "Terry" device used in the study to measure time orientation and also of the concept that certain behaviors are systematically associated with time orientation.

A. Results:

Time Orientation and Disciplinary Infractions

Hypothesis 1.1 deals with possible relationships between time orientation and ability to postpone the gratification of impulses and momentarily felt needs. It was posited that the individual with restricted time orientation would be less able to effect such control than the person with extended time orientation. Hence, he would more likely have difficulty adhering to a system of rules, which necessarily demands that the individual check many of his impulses and postpone the gratification of many of his needs.

This assertion as stated in the form of the hypothesis that more subjects with restricted time orientation will be referred to school authorities for disciplinary infractions than those with extended time orientation. The null hypothesis to be tested is: there are no obtained differences in the frequency with which subjects with restricted time orientation and those with extended time orientation are referred to school authorities for disciplinary infractions. This hypothesis was tested by Chi Square, and the results are presented in Table II.

Table II

Referrals to School Authorities for Disciplinary Infractions

	Never Referred		Referred		Totals
Extended time or.	26	(19.0)*	4	(11.0)	30
Restricted time or.	21	(28.0)	23	(16.0)	44
Totals	47		27		74

$X^2 = 11.6842$
df = 1
p = .01

* expected frequencies in parantheses

The Chi Square is significant beyond the .01 level, and the null hypothesis is rejected. By inspection of the table, it may be seen that subjects with restricted time orientation are far more likely to experience difficulty conforming to school rules than those with extended time orientation, as predicted.

Time Orientation and Achievement

Hypothesis 1.2 states that subjects with restricted time orientation will obtain lower scores in a standardized achievement test, ability being held constant, than those with extended time orientation. The null hypothesis would be: no obtained differences will be found in achievement test scores, ability being held constant, between the Restricted and Extended groups.

This hypothesis was tested by a covariance type of analysis, as found in Quenouille (25). The use of this technique, in effect, equates the Differential Aptitude Test scores of the two groups and allows a comparison of the mean scores of the two groups on the Cooperative English Test. In Quenouille's words, "This approach shows that testing the distance between the regression lines is equivalent to testing the differences between (achievement) when the effect of possible differences in (ability) have been removed. This difference allows the difference between the two groups to be specified more accurately....by eliminating the effect of differences in (ability) the comparison between the two groups is made...more accurately." (p.138)

In order to test the difference between the two means, it was first necessary to test whether the estimated variances in the groups was significantly different. The regression coefficients for these two observations were:

Restricted group $r = .668$
Extended group $r = .589$

The analyses of variance are shown in Table III

Table III

	For Restricted T.O.			For Extended T.O.		
	D.f.	S.s	M.s.	D.f.	S.s.	M.s.
Regression	1	21,699.312		1	12,403.86	
Residual variation	42	9,101.9	216.71	28	6,298.8	224.96
Total	43	30,801.2		29	18,702.7	

Variance Ratio = 1.04 (n.s.)

The variance ratio of 1.04 of the residual mean squares was tested and found to be non-significant. A pooled estimate of variance was obtained (220.01), and the standard error of the difference between regression coefficients was found to be .103315. This yielded a "t" ratio of $\frac{.079}{.103315} = .7646$, and the two regression coefficients were found to be not significantly different. They were combined to yield an overall regression coefficient of .634.

To determine whether the distance between the two regression lines was significantly different from zero, the standard error of the distance between the two lines was determined. The equations for the two regression lines are:

$$x = 32.7 + .634\ (y - 30)$$
$$x' = 53.1 + .634\ (y' - 47)$$

The distance between the two regression lines, therefore, is:

$$32.7 - 52.1 - .634(30 - 47) = 8.622$$

The standard error of this distance is:

$$\sqrt{222\left(\frac{1}{44} + \frac{1}{30} + \frac{(30-47)^2}{84,409.87}\right)} = 3.52817$$

The "t" ratio for the significance of this difference is:

$$\frac{8.622}{3.52817} = 2.444$$

d.f. = 71

p = .02

The probability of the obtained differences in achievement between the two groups happening by chance are less than 2 in one hundred, and the null hypothesis is rejected. It seems apparent that subjects in the Restricted group do not achieve as well in relationship to their ability as do those in the Extended group.

Time Orientation and Leadership

Hypothesis 1.3 states that fewer subjects with restricted time orientation will have attained leadership positions in peer organizations than those with extended time orientation. The null hypothesis, that there will be no obtained differences in number of leadership positions reported in the Restricted and Extended groups, was tested by chi square. The results are presented in Table IV.

Table IV

Leadership positions held in clubs and organizations

	None		One or more		Totals	
Extended time pr.	16	(21.45)*	13	(7.55)	29	(2 not reported)
Restricted time or.	38	(32.55)	6	(11.45)	44	
Totals	54		19		73	

*(expected frequencies in parentheses)

$\chi^2 = 8.99$
df = 1
p = .01

Inspection of the table indicates that the subjects in the Extended group hold more than the expected number of leadership positions. The probability of such a preponderance of leadership

positions in this group is less than 1 in 100. The null hypothesis, therefore, is rejected, and hypothesis 1.3 may be considered as accepted.

Time Orientation and Socio-Economic Level of Expected Adult Occupations

Hypothesis 1.4 is that more subjects with restricted time orientation will indicate expected vocational goals of an unskilled and semi-skilled nature, which require less foreplanning and training, than those with extended time orientation. The null hypothesis is that there will be no obtained differences in levels of expected adult occupation between the two groups. Because there was a frequency of zero in one of the cells, chi square was not applicable, and the Fisher exact probability test was used to test the hypothesis. The results of the test are presented in Table V.

Table V

Socio-economic levels of Expected Adult Occupation (Warner, Meeker, Eels classification of occupations)

	Levels 1,2,3		Levels 6,7		Totals
Extended time or.	16	(12.44)*	0	(3.56)	16
Restricted time or.	12	(15.56)	8	(4.44)	20
Totals	28		8		36

*(expected frequencies in parentheses)

$p = .004108$

The Fisher test was significant at the .004 level, and the null hypothesis is rejected. It is apparent that subjects with restricted

time orientation, as a group, expect to move into lower level occupations as adults than do subjects from the extended group.

Use of TAT responses as the Independent Variable

Hypothesis 2 states that subjects' responses to the TAT test will not provide as effective a basis for the prediction of the behaviors covered by hypotheses 1.1, 1.2, 1.3, and 1.4 as will their responses to the "Terry" test.

In order to test this hypothesis, the experiment was replicated, but with one major difference; performance on the TAT was used as the independent variable. Restricted time orientation and Extended time orientation groups were formed according to subject responses to the TAT, as explained in Chapter 3. Hereafter, these groups will be termed Restricted (TAT) and Extended (TAT). Although drawn from the same base sample of 163, the TAT-based groups were composed of different subjects than those who made up the "Terry"-based groups. The null hypotheses employed to test Hypothesis 2 are identical with those used to test Hypothesis 1, but they have been re-labeled as 2.1,2.2,2.3, and 2.4. Acceptance of the null form of hypotheses 2.1, 2.2,2.3, and 2.4 may be construed as indicating that responses to the TAT do not provide an effective basis for the prediction of the dependent variables, and that Hypothesis 2 may be considered as verified.

Significance of obtained differences between the two TAT-based groups was tested by Chi Square. The results are presented in summary form in Table VI.

Table VI

Summary of Chi Squares Resulting from tests of Hypotheses 2.1, 2.2, 2.3, and 2.4

	X^2	d.f.	p	Null Hypothesis
Hypothesis 2.1 (Disciplinary Infractions)	< 1	1	n.s.	Accepted
Hypothesis 2.2 (Ability-DAT)	4.604	3	n.s.	Accepted
(Achievement-Co-op Engl.)	4.441	3	n.s.	Accepted
Hypothesis 2.3 (Leadership)	1.689	1	n.s.	Accepted
Hypothesis 2.4 (Expected Adult Occupation)	< 1	1	n.s.	Accepted

As may be seen from Table VI, there were no obtained differences between the Restricted (TAT) and Extended (TAT) groups on any of the variables with which this investigation is concerned. The null hypothesis was accepted for each of the hypotheses 2.1, 2.2, 2.3, and 2.4. The cumulative effect of the acceptance of these null hypotheses is that responses to the TAT, as scored in this study for time orientation, provide only a chance basis for the prediction of the behaviors with which this investigation is concerned. Hypothesis 2 may be considered as verified. It would appear that, since the "Terry" test does predict the behaviors which are believed to be related to time orientation, and since the TAT test does not, the "Terry" test is the more effective of the two.

B. Discussion of Results: On the basis of the obtained results, it may be seen that, as a group, the individuals in the Restricted group tend to "get into trouble", at least in a public school setting,

more often than their classmates in the Extended group. In addition to this, they tend to underachieve, relative to their ability, compared to their classmates in the Extended group. They are less often chosen by their peers to occupy positions of leadership, than their classmates in the Extended group. More individuals with restricted time orientation expect to engage in adult occupations of an unskilled or semi-skilled nature, such as factory worker, laborer, truck driver, etc. None of those with extended time orientation expressed such modest expectations.

From these data, it might be inferred that the subjects with restricted time orientation appear to be individuals who are relatively unsuccessful at coping with the school environment in which they find themselves, and it appears that they are likely to find themselves "at odds" with this environment. A preliminary drop-out study, not yet complete enough for detailed inclusion in this investigation, suggests that the individuals with restricted time orientation are far more likely to leave school before graduation than their classmates with extended time orientation. At the present writing, 1 of the Extended group had dropped out of school, as compared with 6 of the Restricted group.

The obtained differences between subjects with restricted time orientation and those with extended time orientation may not be attributed to social status differences, for the two groups were found not to differ signficantly with respect to this variable. This might suggest that differences in time orientation are due more to individual differences than to systematic differences in social learning as it relates to social class.

The data from this investigation suggest that subjects with restricted time orientation, as a group, tend to meet more than a usual amount of day to day social failure, and they tend to expect to occupy low status, low income vocational roles in adult life. It does not appear that they anticipate becoming "successful" adults, at least in the terms of success as represented by mass communications media and as perceived by the community at large. If, as it appears, these individuals do not cope successfully with their environment, and consequently have more than their share of failure experiences, questions concerning their self-concepts might be raised. To what extent do these apparently repeated failure experiences affect the self-concept? To what extent might their self-concept condition them to enter new situations and to behave in ways which will tend to "load the dice" against succeeding?

An investigation by Grant (16) may provide help in answering such a question. He found that institutionalized delinquent girls view themselves more negatively and pessimistically, and expect others to view them more negatively than non-delinquent public school girls. The delinquent girls tend to see themselves as individuals who are foreordained to fail. Of related interest is the study of Barndt (3), who found that institutionalized delinquent boys had a shorter time orientation than non-delinquent public schools boys. It is possible that these two characteristics, restricted time orientation and negative self-concept, might be associated with one another. On the basis of the incomplete evidence presently available, it would seem a logical supposition.

Mowrer has suggested that a time orientation which allows the individual to "see beyond" the immediate present is a sine qua non for behavior which is more consistently rewarding than punishing. To be "present oriented" may well mean that one is unable to clearly discern the relationships between a present act and its probable chain of consequences, particularly the more temporally remote ones. According to Mowrer, a "present oriented" individual would be expected to act in ways which may be immediately rewarding but which might well bring on consequences which in the long run are punishing. He would be unlikely to associate the punishment with his own previous act, but probably would blame the persons who administered the punishment. He would not learn to alter his behavior so as to not get into trouble, but might instead learn to "hate cops", etc., who seem to him to exist only to give him a hard time. He would not be likely to learn from a poor report card that he should "play less" and study harder today to avert poor report cards in the future, but instead might learn that he disliked school, could "get by" with cheating techniques, etc.

It is not completely accurate to say that he does not learn from experience, but would probably be more true to say that he does not learn the lessons society expects him to learn. One would expect the person with restricted time orientation to learn to avoid situations in which he had to postpone the gratification of his needs and impulses. He might also have a tendency to learn socially disapproved "short cuts" to the acquisition of goals which are socially desirable but not easily attained. The data obtained in this investigation appear to lend some tentative support to this line of thinking, but

more work should be done before definitive conclusions can be reached.

It might also be expected that individuals with restricted time orientation would be as unable to see "beyond themselves" and their present, pressing needs as they would be able to "look ahead" into the future. If this is so, they might be expected to be more narcissistic and preoccupied with the gratification of their own needs, as compared to their peers with more extended time orientation. Such a tendency would certainly have an adverse affect on the quality of their interpersonal relationships. The fact that very few of the subjects with restricted time orientation in this investigation were entrusted with positions of leadership and responsibility would suggest that they may be perceived by their peers as lacking in certain skills in the field of interpersonal relationships.

One might predict that individuals with restricted time orientation would tend to relate to others only as the others were instrumental in helping them satisfy their needs. If the interpersonal relationship necessitated some postponement and renunciation of needs, as any deep relationship necessarily does, it would be likely that the present oriented person would not "hold up his end" of the relationship. One would, then, expect the present oriented individual to either be an isolate or to reveal a pattern of temporary, shifting, casual friendships, and to have an instable love life marked by a succession of mates.

This investigation also set out to determine the effectiveness of the "Terry" test, which was developed specifically for the purpose of measuring time orientation. Previous investigators have inferred time orientation from responses to the Thematic Apperception Test.

It was found in this investigation that each predicted behavior was demonstrated when the "Terry" test was used as the independent variable, as opposed to no significant results when TAT responses were so used.

The "Terry" test is structured so that a definite temporal base point is provided for the subject, and so that he must respond to the test in definite time units. The extensiveness of time which the subject reveals does not need to be inferred, for it is intrinsic in his direct response. In using the TAT, the subject is asked to write or tell a story in response to the stimulus card. Then, more or less as an afterthought (from the subject's point of view), he is asked to make an inference as to how much time is involved in the story. He enters the TAT situation with no idea of the nature of the task before him; no psychological set to structure his thinking in temporal terms. For the purposes of this investigation, it was considered advantageous to have subjects so structure their thinking, since it was only the temporal factors which were to be measured.

The "Terry" test takes 5 to 10 minutes to administer, and approximately 1 minute to score, whereas the TAT is quite a time consuming process, particularly when large groups of individuals are being tested.

There is a minimum of writing involved in the "Terry" test, so that the subject who is handicapped in written expression is not penalized as is the case with the TAT.

From the statistical point of view, the "Terry" test is reported in equal, continuous units (years), with a zero point. It is not implied here that years are <u>psychologically</u> equal units any more than

inches are psychologically equal units when used to measure height. What is implied is that parametric statistics may be used to analyze data derived from the test scores.

Chapter V

Summary and Conclusions

A. The Problem

This investigation was undertaken in order to clarify the nature of possible relationships between time orientation and human behavior. Previous investigations had indicated that relationships exist, but in none of them had an attempt been made to predict patterns, or constellations of behavior from knowledge of the extensiveness of subjects' time orientation. Such prediction was done in this study.

An additional purpose of the present investigation was to develop a new instrument for the measurement of time orientation, the "Terry" test.

B. The Hypotheses

In order to test the general thesis that different behavior patterns may be predicted for people according to the extensiveness of their time orientation, the following hypotheses were advanced:

1.1 More subjects with restricted time orientation will be referred to school authorities for disciplinary infractions than those with extended time orientation.

1.2 Subjects with restricted time orientation will obtain lower scores on a standardized achievement test, ability being held constant, than those with extended time orientation.

1.3 Fewer subjects with restricted time orientation will have attained leadership positions in peer organizations than those with extended time orientation.

1.4 More subjects with restricted time orientation will indicate expected vocational goals of an unskilled and semi-skilled nature, which require less foreplanning and training than those with extended time orientation.

2. Subject responses to Thematic Apperception Test pictures will not provide as effective a basis for prediction of the behaviors covered in hypotheses 1.1, 1.2, 1.3, and 1.4 as will responses to the instrument designed for this investigation, the "Terry" test.

C. Procedure

All members of the ninth grade of a public junior high school were given a group of tests and questionnaires. All were rated by school authorities as to frequency of disciplinary infractions for the current school year. On the basis of performance on the "Terry" test for measurement of time orientation, two groups of subjects were formed:

1. Restricted time orientation group, composed of 44 subjects who obtained a time orientation score of 2 years or less.
2. Extended time orientation group, composed of 31 subjects who obtained a time orientation score of 10 years or more.

These two groups were compared according to the behaviors encompassed in hypotheses 1.1, 1.2, 1.3, and 1.4, and significant differences were noted.

In order to test hypothesis 2, two other groups from the same total pool of subjects were formed according to their performance on the TAT, as adapted herein for the measurement of time orientation.

1. Restricted (TAT) time orientation group, composed of 35 subjects who obtained a score of 10 or less on the TAT.
2. Extended (TAT) time orientation group, composed of 31 subjects who obtained a score of 20 or more on the TAT.

These two groups were then compared according to the behaviors encompassed in hypotheses 1.1, 1.2, 1.3, and 1.4.

D. Findings

Hypotheses 1.1, 1.2, 1.3, and 1.4 were all accepted. It was found that, as a group, subjects with restricted time orientation, as measured by the "Terry" test:

1. Had significantly greater number of disciplinary infractions during the school year, i.e,, were prone to "get into trouble" more often than their peers with more extended time orientation.
2. Obtained lower scores on an achievement test, ability being held constant, than their peers with more extended time orientation.
3. Were chosen as leaders less often than subjects with more extended time orientation.
4. Anticipated adult occupations of lower status and pay which require less training and foreplanning than subjects with more extended time orientation.

Hypothesis 2 was confirmed in that no differences in behavior were found between the Restricted (TAT) and Extended (TAT) groups which were formed according to subject responses to the Thematic Apperception Test. It is apparent that the "Terry" test is a more effective measure of time orientation than the TAT, as scored for this investigation.

E. Conclusions

The most apparent general conclusion which might be drawn from this investigation is that systematic differences in behavior were found between subjects according to the extensiveness of their time orientation as measured by the "Terry" test. In general, those subjects with restricted time orientation seem to be less successful at coping with their school environment than their peers with more extended time orientation. They get into trouble at school more often, they tend to be underachievers, they are not entrusted with positions of leadership by their peers, and they expect to have marginal vocational success as adults, and to move into low status jobs which require a minimum of training and foreplanning.

It was also found that these obtained differences do not appear to be related to the occupational and social status of their families.

Findings also included the fact that the "Terry" test, which was developed for this study to measure time orientation, provided a firm basis for the prediction of the constellation of behaviors with which the hypotheses were concerned. Such was not the case with the TAT, which provided no better than a chance basis for the prediction of the time-related behaviors which were investigated.

F. Research Implications

The present investigation answers some questions about the relationships of time orientation and behavior, but it raises several others which appear to merit further research. Some of the possible areas for such research follow:

1. Dynamics of the acquisition of time orientation. No research has appeared which is designed to study individual differences between individuals with restricted and those with extended time orientation. Such research is indicated.
2. Differences in time orientation as associated with differences in self-concept. It is predicted that individuals with restricted time orientation, being less able to cope adequately with the environment, will have self-concepts characterized by more negative feelings than those with extended time orientation.
3. Relationship of time orientation to narcissicism-altrusim. It seems likely that the individual with restricted time orientation, being less able successfully to check his impulses, will be found to exhibit this same inability in his interpersonal relationships. It is suggested that he will be found to be more narcissistic and more poorly socialized than the individual with more extended time orientation.
4. Possible changes in time orientation accompanying psycho-therapy. A comparison of pre and post-therapy

measures of time orientation between successful and unsuccessful therapy clients could provide useful data to answer this question.

G. Concluding Statement:

One inference which can be drawn from the observed fact that certain behaviors were found to be systematically associated with scores on the "Terry" test is that the test measures something which has psychological significance. This "something" may be thought of as an intervening variable, since it leads from test scores on the one end to predictions about observable behavior. In the present investigation, this intervening variable has been termed <u>time orientation</u>. The concept of time orientation was developed theoretically, certain behavioral predictions in the form of hypotheses were derived from the theory. The data supported acceptance of these hypotheses. This may be interpreted as strengthening the theory as presented in the investigation.

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